

**Supplementary Table S1.** Preliminary optimisation of calf fleshings meat digestion conditions and selection of most efficient proteases. Content of proteins (expressed as g of bovine serum albumin equivalent per L, g BSA eq/L) and antioxidant activity (expressed as g of Trolox equivalent per L, g TEAC /L) on digested intermediate protein-based fractions. ND, not digested samples. Samples ND 60°C (4h),  $\alpha$ -Chymotrypsin and Pepsin (2%, 4h) showed the formation of gelatin after incubation and it was not possible to separate their intermediate liquid fraction and perform the assays. N.d., not determined. In bold samples selected for the further assays.

Enzyme	Digestion conditions			Hydrolysed proteins (g BSA eq/L)	Antioxidant activity (g TEAC /L)
	E/S ratio (%) (g enzyme/gFW sample)	Incubation time (h)	Temperature (°C)		
ND	-	4	60	n.d.	n.d.
	-	4	50	3.34 ± 0.12	0.14 ± 0.04
	-	4	37	8.52 ± 0.34	0.11 ± 0.01
Alcalase	1	2	60	50.55 ± 3.17	0.78 ± 0.02
	2	2	60	49.57 ± 1.15	2.27 ± 0.03
	2	4	60	53.17 ± 0.06	2.29 ± 0.01
	2	6	60	51.50 ± 1.70	2.20 ± 0.02
	2	24	60	56.37 ± 2.89	2.28 ± 0.02
	4	2	60	56.05 ± 4.93	0.90 ± 0.19
	10	4	60	55.10 ± 4.72	1.37 ± 0.02
	10	24	60	46.44 ± 1.20	1.94 ± 0.15
Protamex	1	2	60	34.93 ± 0.59	0.49 ± 0.03
	2	2	60	47.37 ± 2.91	2.11 ± 0.04
	2	4	60	49.63 ± 2.21	2.29 ± 0.02
	2	6	60	48.21 ± 5.32	2.14 ± 0.12
	2	24	60	29.44 ± 1.34	1.90 ± 0.04
	4	2	60	45.71 ± 2.74	0.97 ± 0.05
	10	4	60	49.26 ± 1.58	2.22 ± 0.25
	10	24	60	31.70 ± 2.30	2.05 ± 0.01
Papain	2	2	60	56.35 ± 2.76	0.90 ± 0.14
	2	4	60	55.83 ± 0.79	2.11 ± 0.04
	2	24	60	42.14 ± 5.00	2.06 ± 0.10

	5	2	60	59.03 ± 1.49	1.25 ± 0.23
	8	2	60	68.75 ± 1.32	1.56 ± 0.13
	10	2	60	<b>77.31 ± 1.85</b>	3.25 ± 0.01
	10	4	60	73.32 ± 10.13	3.12 ± 0.04
	10	6	60	75.92 ± 0.49	3.09 ± 0.08
	10	24	60	69.54 ± 3.19	3.42 ± 0.04
<b>Neutrase</b>	2	4	50	39.17 ± 3.15	1.43 ± 0.04
	2	24	50	33.32 ± 0.95	2.39 ± 0.01
	10	4	50	40.62 ± 4.19	1.94 ± 0.01
	10	24	50	35.62 ± 1.34	2.54 ± 0.04
<b>Flavourzyme</b>	2	4	50	24.51 ± 2.29	0.96 ± 0.18
	2	24	50	19.08 ± 1.70	2.30 ± 0.07
	10	4	50	22.83 ± 1.04	1.36 ± 0.13
	10	24	50	16.14 ± 2.35	1.86 ± 0.08
<b>Pancreatin</b>	1	4	37	40.57 ± 1.58	0.59 ± 0.07
	2	4	37	47.63 ± 0.10	0.60 ± 0.01
	5	4	37	46.75 ± 1.47	0.70 ± 0.06
	8	4	37	55.45 ± 0.93	0.86 ± 0.08
	10	2	37	<b>58.76 ± 1.98</b>	1.16 ± 0.01
	10	4	37	58.16 ± 2.16	0.98 ± 0.11
<b>Trypsin (type A)</b>	1	4	37	36.54 ± 1.81	0.44 ± 0.04
	2	4	37	33.45 ± 1.94	0.44 ± 0.02
	4	4	37	60.09 ± 1.97	1.03 ± 0.15
	6	4	37	61.76 ± 0.86	0.82 ± 0.05
<b>Trypsin (type B)</b>	6	4	37	64.12 ± 3.12	1.04 ± 0.02
	10	2	37	70.40 ± 1.29	1.01 ± 0.03
	10	4	37	<b>77.65 ± 4.53</b>	1.12 ± 0.02
<b>Bromelain</b>	1	4	37	48.42 ± 3.95	0.66 ± 0.06
	2	4	37	49.82 ± 2.23	0.89 ± 0.01
	5	4	37	56.48 ± 4.45	1.09 ± 0.15

	8	4	37	65.53 ± 3.69	1.70 ± 0.03
	10	2	37	<b>68.88 ± 0.57</b>	1.72 ± 0.07
	10	4	37	68.16 ± 0.13	1.73 ± 0.04
<b>α-Chymotrypsin</b>	2	4	37	n.d.	n.d.
<b>Pepsin</b>	2	4	37	n.d.	n.d.